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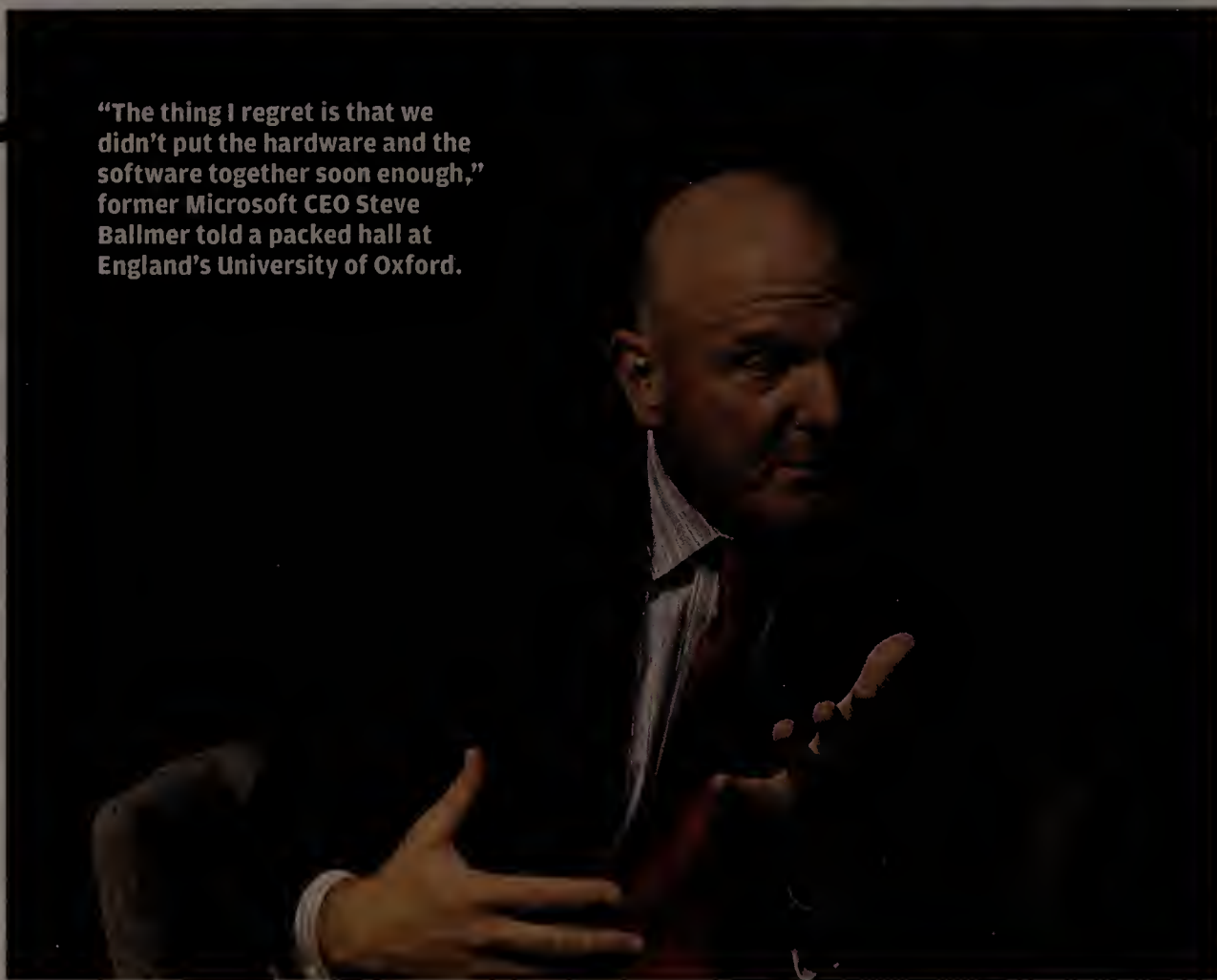
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"The thing I regret is that we didn't put the hardware and the software together soon enough," former Microsoft CEO Steve Ballmer told a packed hall at England's University of Oxford.



MICROSOFT

Ballmer: Hardware-Software Delay Hurt

IN HIS FIRST public appearance since he stepped down as Microsoft's CEO, Steve Ballmer again acknowledged that the company missed the boat on mobile.

But this time he put a different spin on his analysis of Microsoft's strategic moves, and evoked the business model that has led to so much success for the company's rival, Apple.

"The thing I regret is that we didn't put the hardware and the software together soon enough," Ballmer said, referring not just to smartphones, but also to mobile in general.

Putting hardware and software together is Apple's business model, and that approach has proved successful over the years because the company not only creates both elements, but also controls them from first to last.

Microsoft picked up the hardware-software bug with its Xbox line. But it didn't make a

similar move in general computing until mid-2012, with the Surface line of tablets.

"I think it's probably fair to say that there are things that did not go as well as we intended them to" in the past decade, Ballmer told a crowd of students and alumni in a packed hall at England's University of Oxford.

But Ballmer argued that Microsoft's failure to hit home runs with either smartphones or tablets didn't mean that Microsoft itself was a failure, or that it couldn't regain the glory of earlier days.

"The question is, what do you do when you get behind?" Ballmer asked. "You say, 'What did we do wrong, and how do we make sure we build assets that let us seize things going forward?'"

— Gregg Keizer

ASSET MANAGEMENT

CIOs Worldwide Grapple With Unneeded Apps

Corporate IT departments all over the world are burdened with unnecessary software applications, according to a survey by systems integrator Capgemini.

Of 1,116 CIOs and senior IT executives polled, 48% said their companies have more applications than they need, said Capgemini. That's up from 34% in a previous survey.

Only 37% said a majority of the applications they have are mission-critical, and 70% reported that at least 20% of their applications are redundant.

The IT leaders surveyed came from 16 countries, with 73% representing regions with mature economies, such as the U.S. and Europe, and the remainder in emerging markets like China and India.

Respondents in developed countries have more mature application portfolios, but poorer alignment between IT and business departments, Capgemini found.

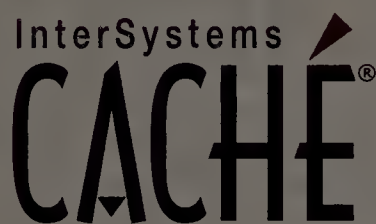
Some 92% of respondents in Brazil, India and China reported their business departments had at least a satisfactory level of understanding of their company's application portfolio, compared to 64% in Finland and 69% and Norway.

Bloated portfolios notwithstanding, 59% of the respondents said they would spend "more" or "significantly more" on applications.

— CHRIS KANARACUS,
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HEADS UP

BETWEEN THE LINES

By John Klossner



CLOUD COMPUTING

The Cloud May Be Safer Than You Think

SECURITY CONCERNS shouldn't deter enterprises from using public cloud technologies when it makes business sense to do so.

A panel of security professionals at the recent RSA Conference agreed that most enterprise workloads can be safely moved to the cloud — if vendors are vetted properly.

"There is no debate about whether we are going to use the cloud," said John Pescatore, director of research at the SANS Institute.

But security concerns are still the major barrier to cloud adoption at many organizations. An Intermap survey of 250 decision-makers at large and midsize companies found that 40% of those who described themselves as "cloud-wary" cited security as their biggest impediment to adoption. In contrast, only about 15% of "cloud-wise" respondents said they felt the same way.

Panelist Bruce Schneier suggested that companies first consider the level of security offered by the provider. "The basic issue is,

do I trust that other legal entity that has my data on their hard drive?" said Schneier, who is CTO at Co3 Systems, a vendor of incident response technologies.

Making that leap of faith shouldn't be too difficult for IT executives, he said. Just as they had to learn to trust providers of outsourced IT services, enterprise IT executives will one day have to start trusting cloud vendors.

There are few instances where enterprise data was compromised because it was moved to the cloud, said Wade Baker, managing principal of research and intelligence at Verizon. And Pescatore noted that the vast majority of breaches of cloud-based systems stem from blunders on the part of the customer, not the cloud vendor.

By properly classifying data when moving sensitive information to the cloud, companies can do a better job protecting the really critical data internally, said Eran Feigenbaum, director of security for Google Apps.

— Jaikumar Vijayan

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DATA STORAGE

Seagate Readies High-Capacity Tablet Drives

Tablets come with relatively little native storage, but Seagate hopes to do something about that.

The company is developing high-capacity drives that could be used in tablets, and the products may debut as early as this year, said Pat O'Malley, the company's chief financial officer, in a recent speech.

Seagate already sells a 500GB ultramobile hard drive that's 5mm thick and can fit easily into a tablet.

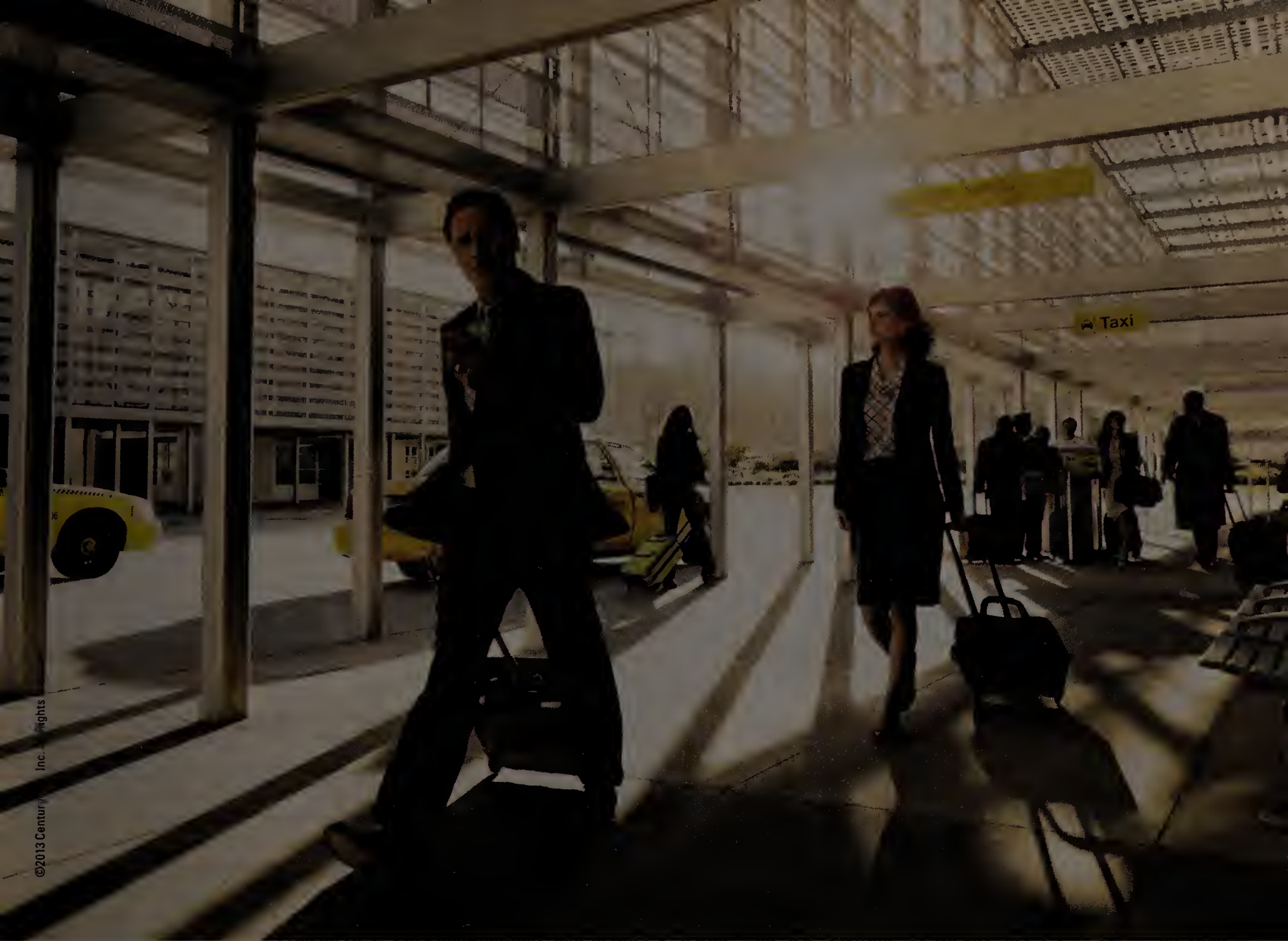
Most tablets and Chromebooks today have 8GB or 16GB of storage — enough to handle basic workloads, like browsing the Web and running mobile apps. Tablet users largely rely on external hard drives for storage, said O'Malley, noting that people end up buying external drives for about 40% of tablets. By way of comparison, he pointed out that users purchase external drives for only about 10% of laptops.

O'Malley said Seagate sees an opportunity in performance-focused tablets.

In fact, the storage vendor sees opportunities in numerous markets, notably the cloud, said O'Malley, pointing out that deals with Web services providers and cloud vendors are accounting for an ever-increasing share of Seagate's drive sales.

— AGAM SHAH,

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Internet of Things Needs Open Source

The Linux Foundation believes it has found the code that will unlock the Internet of Things and bring it to a mass audience. By Patrick Thibodeau

THE BIGGEST OBSTACLE to making the Internet of Things a universal reality isn't imagination or technology. It's interoperability.

If washing machines made by Whirlpool, Maytag or GE can't communicate with Samsung TVs, Apple iPhones, Kenmore ovens or other appliances and gadgets, the Internet of Things won't work.

No single consumer electronics vendor is large enough to create a standard that would be accepted by all parties. But some vendors are large enough to frustrate users if they each build a proprietary Internet of Things

mostly around their own products.

Into this disconnect steps the open-source community, which believes it has the technology, the methodology and the clout to drive the electronics industry toward true interoperability.

In December, the Linux Foundation, a nonprofit consortium that promotes the adoption of Linux, created the AllSeen Alliance. It took a code stack developed by Qualcomm called AllJoyn and put it under its open-source umbrella.

The AllJoyn framework's C++ code supports all of the major operating systems, chipsets and embedded variants. Any appliance or electronic device — even, say, an LED light bulb — that has the AllJoyn code will have a basis for connectivity with other products that also use the code.

The tech world should know whether the plan has legs in less than 12 months. If all goes well, electronics makers will be touting their use of AllSeen at the 2015 Consumer Electronics Show (CES) next January.

Jim Zemlin, executive director of the Linux Foundation, said the question is simple: Do device and appliance makers want to write software for every single consumer product or mobile device, "or do they just want to go download this code and put it into their product and know that it's taken care of?"

He apparently thinks the answer is simple, too. "You are going to see a lot of products this year with [AllSeen] code in it," he said.

Enderle Group analyst Rob Enderle isn't so sure. He said the major electronics vendors won't use AllSeen unless one of three things happens: They are forced to by government action, they stop being dominant, or consumers insist that they do.

He may have a point. While the AllSeen Alliance is supported by big companies like LG Electronics, Panasonic, Sharp, Qualcomm and AT&T Digital Life, consumer electronics heavyweights like Samsung and Apple aren't on board yet.

"The guys who are dominating the market [are not] jumping on this particular bandwagon," said Enderle. "When you are dominant, you don't like

[open standards] because it lets other people into your market."

Others see it differently. "Open source has an important role to play," said Andrew Aitken, managing director of Black Duck Consulting, a unit of Black Duck Software. Noting that

members of the open-source community "span industries and cross international borders," he said an open-source approach is the best way to grow an Internet of Things.

Without open source, Aitken wrote in a paper for the Open Source Think Tank conference, only "hobbyists and select wealthy homeowners" will use the Internet of Things, which would be "a fragmented, lackluster landscape." ♦

“When you are dominant, you don't like [open standards] because it lets other people into your market.”

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Killing XP a Risky Move for Microsoft

The company could lose its hard-won reputation for keeping software secure if it goes through with its plan to end XP support. By Gregg Keizer

A DECADE AGO, Microsoft launched Security Development Lifecycle, or SDL, a now widely adopted process designed to bake security into software. That process was the key to Microsoft earning its now unmatched reputation for writing secure code, keeping customers informed about security issues, and backing it all up with regular patches.

But Microsoft may now be on the verge of putting that hard-won reputation at risk by pulling the plug on Windows XP, its 13-year-old operating system. The company plans to ship the final public patches for XP on April 8.

Even Microsoft has acknowledged the danger, saying last

October that after April 8, Windows XP machines will be infected at a rate 66% higher than they were before that date.

The company has justified the plan by reminding users that XP has been supported longer than any other version of Windows; its normal practice has been to patch operating systems for 10 years.

So, on one hand, it's not surprising that the company is sticking to its guns.

On the other hand, Windows XP still powers a massive number of personal computers — 29.5% of the world's PCs, says Internet measurement company Net Applications. That's why there's a good chance of a large-scale XP infection, which could paint the entire Windows brand as insecure.

So if post-April 8 headlines shout, "Windows Under Massive Attack," any reassurances Microsoft tries to offer would be lost amid the noise.

It's possible that the entire Windows ecosystem — every Microsoft application, plus third-party Windows-based software — could be tainted as infection-prone.

Microsoft must have calculated that the risk to its reputation is warranted, that the damage wouldn't be as severe as the revenue hit it would experience if it continued to support XP — or as severe

as the potential loss of future revenue it could suffer as a result of setting this precedent.

So far, Microsoft has done little but repeatedly tell customers that the end of XP is near and that they should move to Windows 8.1. Its repetitive drumbeat — Windows 8.1, Windows 8.1, only Windows 8.1 — seems as tone-deaf as its initial refusal to recognize that customer beefs about Windows 8 were more than the usual griping.

If Microsoft does decide to change direction, customers, analysts and other observers have offered several options: The company could make a 180-degree turn and continue to patch XP; it could continue to support XP, but only with patches for critical vulnerabilities; it could revive Windows 7 and discount XP-to-Windows 7 upgrades; or it could kick off a trade-in program for

Windows XP PCs in cooperation with one or more OEMs.

Undoubtedly, Microsoft has considered those options, but the evidence — silence most of all — indicates that it has rejected them all.

That's a shame. By taking one or more of those steps, Microsoft could point to what it has done to help customers get off XP, rather than have others point out what it has not done. That could mean the difference between a tainted reputation and credibility.

Microsoft can't afford such damage when the PC business has stagnated and its tablet strategy — which also relies on an operating system named Windows — has yet to pay off. ♦

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THE Grill

Peter Markos

Measuring the impact of his nonprofit's giving could help extend its reach.

Hometown: Chicago

Family: Married, with a 5-year-old son, a 2-year-old daughter and a reef tank filled with too many saltwater fish to count.

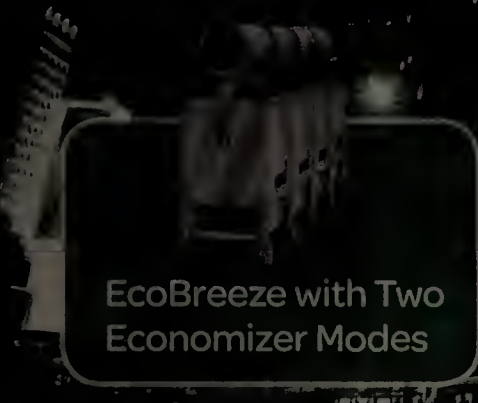
Currently reading: *A Game of Thrones*, by George R.R. Martin. "I'm trying to decide if the book or the HBO series is better."

If you retired tomorrow, what would you do? "I'd spend more time with my family. No question."

What's the next step you'd like to take in your career? "I'd love to get into a for-profit role that's a similar mix to what I have now – business and IT. By bringing those together, you can have a significant impact very quickly."

FEW TECHNOLOGY LEADERS have the reach that Peter Markos does. As CIO for Rotary International, based in Evanston, Ill., Markos oversees technology for a nonprofit organization that boasts 1.2 million members from 34,000 clubs in 200 countries. So it's not surprising that Markos and his 130-member IT team contend with challenges ranging from authenticating a constantly changing list of users who need to access Rotary's systems to enabling applications that work for a vastly diverse membership. Markos also serves as Rotary's general manager. Here he talks about how he handles the challenges and successfully manages his dual positions.

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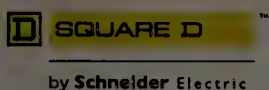
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What is your key objective as Rotary's CIO?

It boils down to one word: enablement. You implement technology to achieve some sort of objective. If you look at how the organization uses technology, up until four or five years ago, we thought of it as how it enabled the staff to help clubs or to lower costs. But five years ago we flipped it on its head and asked, "How do we leverage our greatest asset — our members?" They're the movers and shakers in their communities, and we have a lot of CIOs and others with strong technology skills. And giving is more than just giving money. Rotary is about giving time and expertise, and we found there is huge demand from our membership to create websites, mobile apps and functionalities to allow other members and clubs to be more effective, efficient and to do more. That's been our focus here: How do we enable our membership and partners to do more?

I think business first, and technology is one of the tools on the tool belt to get it done.

How are you using analytics? Where business intelligence comes into play is around measuring the world-wide impact of Rotary. What we have found is that many people know the name [Rotary] but don't know what we do. We also found that when we talk about NGOs [nongovernmental organizations], the way most people measure the impact of an NGO is how much money you give away, which is great if you're the Gates Foundation.

We do have a foundation and give away approximately \$200 million annually, but we are a different model. We have clubs in communities that do work that we don't track. And when we're advocating for additional funding, the size and stature of the organization matters. So we've been using business intelligence to gather data and drive analytics about what is our global impact. We know about the \$200 million we give away, but we started gathering data about what our local clubs are doing in their communities. They might clean up a park or provide meals for a local homeless shelter. When

you gather that, you can start to aggregate what is the impact of Rotary. We're in the beginning stages of this, but we anticipate that we can get to a credible number where we can walk in and say, "We are confident saying that Rotary's impact on an annual basis is \$1 billion." There are very few NGOs internationally that have that kind of impact, and it allows you to open doors.

How's this project progressing? We're gathering the data as best we can, asking how much money went into it, how many hours, and the estimate of the beneficial impact, and then we're getting into true analytics. Some of what I'm describing isn't that difficult to find in a for-profit, but at an NGO, emotion plays a more prominent role than data. People tend to overestimate the [economic benefit], so that cultural transition is a challenge we have to deal with.

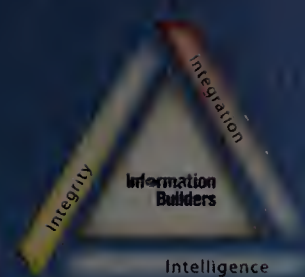
Is it your job as CIO to help that cultural transition? Yes, absolutely. I don't think of myself as a CIO. I think of myself as a member of the executive team tasked with making the organization as successful as possible and reaching its full potential. The CIO is a more tactical, day-to-day thing I deal with. I think business first, and technology is one of the tools on the tool belt to get it done.

You've talked about your work in building culturally diverse, results-oriented teams. Why is that important? Our staff, our members, if given an opportunity to share their input into a process, you can get a much better outcome. That matters, and it also helps with buy-in because by getting their input and by being involved, they're more committed to making it successful. And cultural diversity is important because we are a global organization. We don't want to end up with a U.S.-centric set of solutions that won't work in Europe or Asia. We look at the center in India [Rotary's Information Technology Development Center in Pune, India] and encourage them to have a say. We made a significant investment when we opened that, that the culture would be open and collaborative, and when people share an opinion that they'd be respected. That made a difference in results. We get better solutions that meet the needs of our global constituents.

How do you ensure it? I saw in our first few hires that we had people who wouldn't fit that model. So I had a conversation with a colleague who I thought could ensure that open and collaborative environment and I asked if he wanted to go to India, and he did. He was able to draw out employees. He made a world of difference. And I take trips, and I personally talk to every employee. At the end of the day, the most important thing is really about relationships. If you want people to be open and collaborative and really feel a part of the team, there's a personal connection that has to be made. We invested in that.

— Interview by Computerworld contributing writer
Mary K. Pratt (marykpratt@verizon.net)

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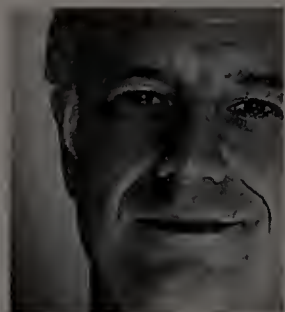
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OPINION

BART PERKINS

Power to the People's Devices

The new USB Power Delivery spec turns the capabilities of the USB port on their head.

A REVOLUTION IS about to come to the most unlikely of places: those hundreds, maybe thousands, of USB ports scattered throughout your company. This revolution will be all about power distribution and management, the stuff that only interests IT infrastructure

staff. But there are wider implications that should make the entire IT organization take notice.

The specification for USB Power Delivery (USB PD) was released nearly two years ago, but devices designed around this standard will only start to appear later this year. The new spec turns the capabilities of the USB port on their head. What was a data interface capable of delivering power will become a power provider with a data interface. Current USB ports provide only 10 watts; devices conforming to the new standard will transmit up to 100 watts. Larger, more complex devices will be able to run with only USB power.

Here's how USB PD will affect IT:

■ **It's green.** According to a California Energy Commission study, office equipment accounts for 17% of electricity consumption in small commercial office buildings. Most office equipment operates internally on DC power, which must be converted from the building's AC power. While Energy Star power supplies must be at least 80% efficient, some low-end devices are only 65% efficient. USB PD devices reduce energy consumption by delivering direct current in the voltage required for the specific device. It's as if Thomas Edison is having the last laugh nearly a century after Nikola Tesla won the AC/DC power wars.

The USB PD specification mandates that DC current flows in both directions. This allows a computer, monitor and other devices connected through USB cables to receive power from a single AC power supply. And that means less energy is wasted converting power. In addition, it allows the device with the most power in its battery to

provide power to the other devices. For example, a laptop could power a phone until its battery is drained and then be powered by that same phone.

New construction could include two sets of wiring to take advantage of USB PD's energy efficiency. One would carry AC power for appliances with large motors. The second would deliver DC current for tablets, phones and other DC-powered electronics. No conversion needed.

■ **There's less clutter.** Most offices contain a maze of power cords and cables connecting different devices to various power sources. Even organizations that install neat cabling usually find that the clutter grows over time as devices are added. Providing power and connectivity through the same cable significantly reduces the number of cords to manage. This looks neater and means there's less to untangle when changes must be made. More important, USB cables are less expensive than the power supplies they will replace.

■ **Travel is easier.** Travel becomes easier when all devices can be powered from a single power supply with a USB connection on the end. There should be no need to lug a separate charger for each device everywhere. Or worse, to discover at a customer site that you do not have the one power supply you desperately need. As USB PD becomes more common, office buildings, airplanes and hotels will offer direct USB plugs, potentially eliminating the need to carry power supplies.

Now is the time to begin determining how to capitalize on USB PD and what resources, transition plans and infrastructure changes you'll need. Early adoption earns green cred and long green. ♦

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.

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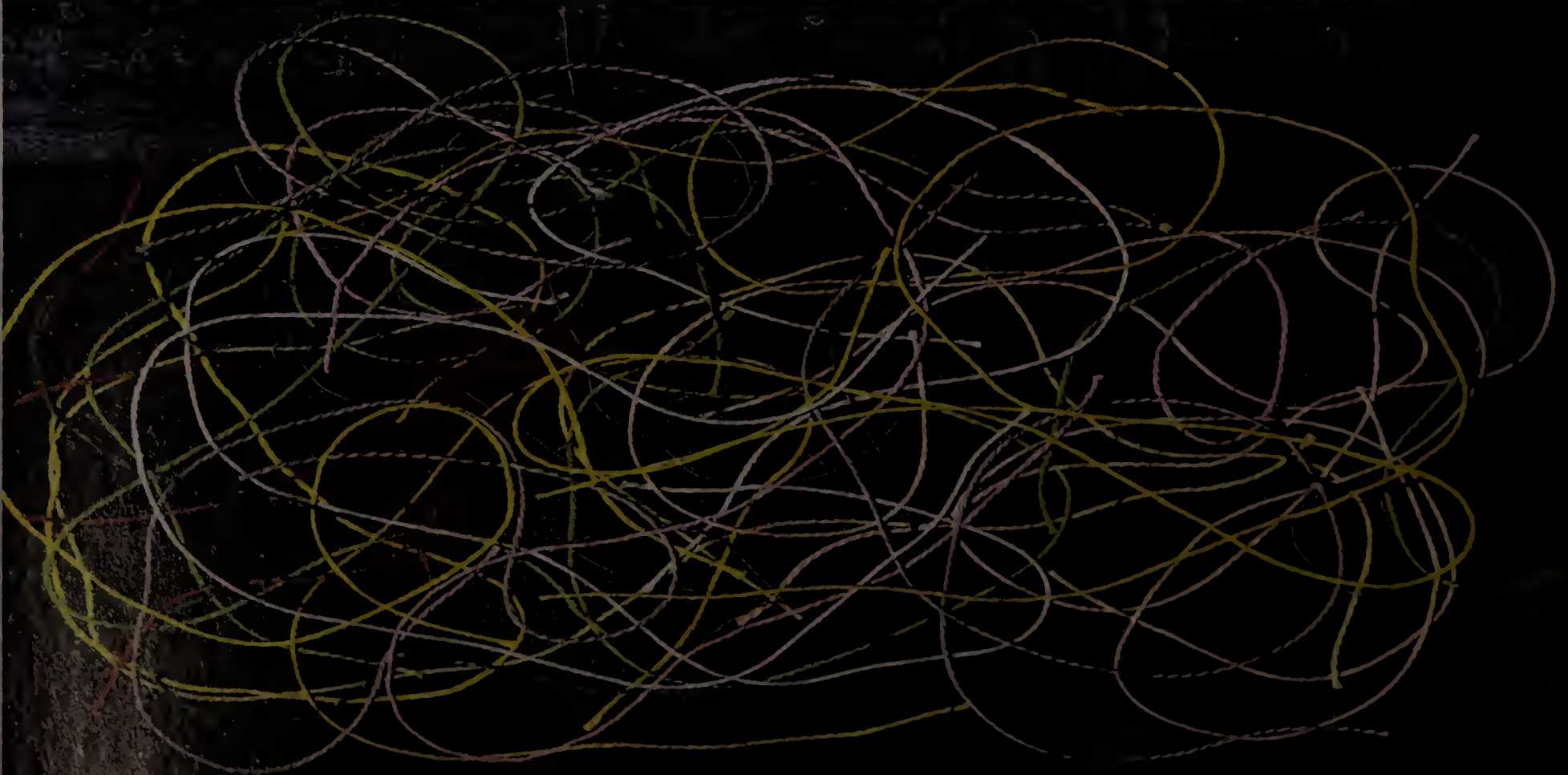
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Hoping to capitalize on free government information, IT leaders are discovering the **value** – and **vexation** – of converting terabytes of data into new revenue streams. **BY CINDY WAXER**

OPEN DATA

O D Y S S E Y

WHEN PRESIDENT BARACK OBAMA signed the Open Data Executive Order last May, many IT leaders applauded the White House's decision to release treasure troves of public data as part of an important government initiative for greater transparency.

However, what many didn't bargain for was the state in which they'd find these once-buried data sets. "A dog's breakfast," "a train wreck," "a massive hairball" — those are a few of the terms IT leaders have used to describe the vast volumes of public data now being made available to the general public.

COVER STORY

Yet the business opportunities are unprecedented — open data offers bits and bytes of public information that are freely available for anyone to use to build new businesses, generate revenue, develop new products, conduct research or empower consumers. With the federal government as the single largest source of open data in the U.S., we now have unfettered access to information about everything from bus routes and pollution levels to SEC filings and weather patterns. Savvy businesses are using public data to predict consumer behavior, shape marketing campaigns, develop life-saving medications, evaluate home properties, even rate retirement plans.

In fact, recent research from the McKinsey Global Institute predicts that the use of open data could lead to the creation of \$3 trillion or more in annual value across the global economy. “The vast potential of open data is not only to increase transparency and accountability of institutions, but also to help create real economic value both for companies and individuals,” says Michael Chui, a partner at the McKinsey Global Institute, the business and economic research arm of McKinsey & Co.

Hoping to capitalize on this open data revolution, IT leaders are taking the lead in discovering the value of converting terabytes of data into new revenue streams. Forget about the open-source movement’s clarion call for free software, greater collaboration and anti-establishment bootstrapping. Today’s open data trend is driven by a desire for both greater government transparency and a fatter bottom line. And as more and more techies clamor for a seat at the table, they’re finding that the era of open data represents a prime opportunity to prove that they’re indispensable revenue-generators, not just server-room sages.

“We’re at a tipping point,” says Joel Gurin, senior adviser at New York University’s Governance Lab (GovLab) and author of *Open Data Now: The Secret to Hot Startups, Smart Investing, Savvy Marketing, and Fast Innovation*. “This is the year open data goes from being a specialized expertise to becoming part of a CIO’s tool kit. It’s a very exciting time.”

But unlocking open data’s value remains a challenge. For one thing, much of today’s open data flows from a whopping 10,000 federal information systems, many of which are based on outdated technologies. And because open data can be messy and riddled with inaccuracies, IT professionals struggle to achieve the data quality and accuracy levels required for making important business decisions. Then there are the data integration headaches and lack of in-house expertise that can easily hinder the transformation of open data into actionable business intelligence.

Yet for those IT leaders who manage to convert decades-old county records, public housing specs and precipitation patterns into a viable business plan, “the sky’s the limit,” says Gurin.

Gurin should know. As part of his work at the GovLab, he’s compiling a who’s who list of U.S. companies that are using government data to generate new business. Known as the Open Data 500, the list features a wide array of businesses — from scrappy startups like Calcbench, which is turning SEC filings into financial insights for investors, to proven successes like The Climate Corporation. Recently purchased by Monsanto for about \$1 billion, The Climate Corporation uses government weather data to revamp agricultural production practices.

Although their business models vary wildly, there’s one thing the Open Data 500 companies have in common: IT departments that have figured out how to collect, cleanse, integrate and package

reams of messy data for public consumption.

Take Zillow, for example. Zillow is an online real estate database that crunches housing data to provide homeowners and real estate professionals with estimated home values, foreclosure rates and the projected cost of renting vs. buying. Founded in 2005 by two former Microsoft executives, the Seattle-based outfit is now valued at more than \$1 billion. But success didn’t arrive overnight.

“Anyone who has worked with public record data knows that real estate data is among the noisiest you can get. It’s a train wreck,” says Stan Humphries, chief economist at Zillow, refer-

We’re at a tipping point. This is the year open data goes from being a specialized expertise to becoming part of a CIO’s tool kit. It’s a very exciting time.

JOEL GURIN, SENIOR ADVISER,
NEW YORK UNIVERSITY’S GOVLAB

ADVOCATES OF OPEN DATA

Despite privacy concerns and questions about the security of open data, there’s no shortage of organizations, from government entities to nonprofits, pushing for greater access to public information. Here are a few

Data.gov: The home of the U.S. government’s open data (www.data.gov).

Open Institute: A Kenya-based think tank of domain experts that provides open data advisory services (openinstitute.com).

Open Knowledge Foundation: A Cambridge, England-based nonprofit organization dedicated to promoting open data (okfn.org).

Socrata: A provider of open data and government performance products that are

designed to make data more accessible and easy to use (www.socrata.com).

The GovLab: A New York University research center that seeks new ways to solve public problems using advances in technology and science (govlab.org).

Sunlight Foundation: A nonprofit organization that provides tools, policies and recommendations to drive greater government openness and transparency (www.sunlightfoundation.com).

ring to the industry's lack of standard formatting. "It's our job to take that massive hairball and pull relevant facts out of it."

Today, Zillow has a team of 16 Ph.D.-wielding data analysts and engineers who use proprietary advanced analytics tools to synthesize everything from sales listings to census data into easy-to-digest reports. One of the biggest challenges for Zillow's IT department has been creating a system that integrates government data from more than 3,000 counties.

"There is no standard format, which is very frustrating," says Humphries. "We've tried and tried to push the government to come up with standard formats, but from [each individual] county's perspective, there's no reason to do it. So it's up to us to figure out 3,000 different ways to ingest data and make sense of it."

Complaints about the lack of standard protocols and formats are common among users of open data.

"Data quality has always been and will continue to be a very important consideration," says Chui. "It's clear that one needs to understand the provenance of the data, the accuracy of the data, how often it's updated, its reliability — these will continue to be important problems to tackle."

So far, Zillow's plan of attack using "sophisticated big data engineering" is working. In fact, a new set of algorithms has helped improve Zillow's median margin of error from 14% to 8%. And for 60% of all sales that occur, Zillow's estimated sales price is within 10% of the actual figure.

Tapping the Richness of Weather Data

Although best known for the friendly forecasts on The Weather Channel and Weather.com, The Weather Company has spent two years branching out and fashioning itself into a provider of a powerful big data analytics platform. Today, the Atlanta-based company's WeatherFX data service ingests more than 20TB of data per day, including satellite pictures, radar imagery and more, from more than 800 public and private sources. By crunching terabytes of information into insights that impact the bottom line, WeatherFX is helping insurance companies, media conglomerates and airlines save money, drive revenue and satisfy customers.

For example, by mashing up hail data with policyholder addresses, insurers can alert homeowners to potential damage to their homes and cars. "By warning customers of pending dangers, insurers can encourage customers to protect their personal property, which lessens the impact of claims on insurers caused by bad weather," says Bryson Koehler, CIO at The Weather Company.

Airlines also use weather data. They may, for instance, monitor storm patterns and reposition aircraft to avert scheduling delays. And retailers are discovering that keeping track of the weather can help them anticipate consumer demand and thereby boost sales — they might, for example, stock their shelves with anti-frizz hair products when a heat wave is expected.

Still, packaging 800 sources of data, much of it open, requires heavy lifting on the part of The Weather Company's IT department. Koehler says the company had to assemble "an incredibly complex environment" to manage "a dog's breakfast" of documents. Nearly two years ago, The Weather Company rebuilt its entire consolidated platform, called SUN (Storage Utility Network), which is deployed on Riak NoSQL databases from Basho Technologies and runs across four availability zones in the Amazon Web Services cloud. Today, the renewable compute platform gathers 2.25 billion weather data points 15 times per hour.

SHOULD YOU SHARE?

IN EARLY FEBRUARY, the National Institutes of Health, 10 drug companies and several nonprofit organizations made an unprecedented deal: They agreed to share the data and analyses they generate in the race to develop drugs to treat Alzheimer's disease, Type 2 diabetes, rheumatoid arthritis and lupus. The \$230 million project, which will last three to five years, marks a clear departure from a secretive way of conducting research to one that involves swapping scientists, blood samples and data in the name of scientific discovery.

But while sharing data can be a win-win situation, the decision to open your treasure troves shouldn't be made lightly. "The potential benefits, and risks, are multiplied when data is shared," says Michael Chui, a partner at the McKinsey Global Institute.

So how do you know whether it's wise to share your data? First, you must ask whether your IT department actually owns the data it collects and manages. Healthcare and financial data, for example, will need to be anonymized before it can be monetized. And in many cases, companies must negotiate with customers to secure the right to use their data long before the number-crunching begins.

You should also determine whether sharing data could leave you vulnerable to legal action by others who rely on your data to run their businesses. Financial and weather data, for example, can change from moment to moment. Offering such data to other companies to use as the basis for making decisions can be risky. Just ask Weather Company CIO Bryson Koehler. "We are publicly predicting the future every minute," he says. "And we're on public display as to whether or not we are right or wrong."

And then there's simply the question of whether you really want to give away your secret sauce. After all, "some organizations have very unique and distinctive data where the data itself creates a competitive advantage," says Chui. That's information that's best left in the vault.

— CINDY WAXER

Overseeing this new IT platform is a data science team comprised of 220 meteorologists and hundreds of engineers, each with in-depth domain knowledge of atmospheric phenomena. "When you're ingesting data from 800 different sources, you need to have some level of expertise tied to each one," says Koehler. "Most Java developers aren't going to be able to tell you, in intricate detail, the difference between a 72 and a 42 on a dew-point scale and how that may or may not impact a business."

Yet for all the IT leaders spearheading today's open data revolution, many argue that it's time the U.S. government played a greater role in the collection, cleaning and sharing of data. In fact, open data services provider Socrata reports that 67.9% of the everyday citizens surveyed for its 2010 Open Government Data Benchmark Study said they believe that government data is the property of taxpayers and should be free to all citizens. Such sentiment has already prompted

COVER STORY

the U.S. government to launch new services through its Data.gov website, enabling visitors to easily access statistical information. But that hasn't stopped techies from drawing up a laundry list of open data demands for government officials.

"A standard structure, a standard set of identifiers, greater data cleanliness, releasing data in a database-friendly format, making it machine-readable, making sure we can use the data without restrictions — these are all ways that government can improve the data they're supplying," says Ryan Alfred, president of BrightScope, a provider of financial information and investment research.

Alfred has every right to grumble. He spent "five long years" huddled in public disclosure rooms at the Department of Labor poring over paper-based retirement plans and auditors' reports before launching BrightScope. Today, his San Diego-based company sells Web-based software that provides corporate plan sponsors, asset managers and financial advisers with in-depth retirement plan ratings and investment analytics. Many of BrightScope's ratings are published online for free, while advisers and large enterprises fork over anywhere from \$5,000 to \$200,000 per year for highly sophisticated and customized prospecting tools.

A team of nearly 15 data analysts processes more than 60,000 retirement plans per year while integrating data captured from SEC filings, financial industry regulatory authorities, census data and public websites. Once collected, the data is then cleansed and linked together using proprietary mapping algorithms.

"There's a big difference between free open data and actionable intelligence," says Alfred. "Companies don't want to purchase data that requires data analysts and infrastructure and integration. So there's a ton of work on both the manual side and the engineering side to get the data into a format that can be reliably used by our clients." That's a complex process that, he says, could be simplified with a bit of help from the government.

The good news is that the government is taking steps to improve data quality.

Calcbench has benefited from that effort. The New York-based startup has created a sophisticated engine that turns complex financial data such as earnings statements, cash flow statements and companies' balance sheets into a more readable format. To ensure accuracy, Calcbench uses proprietary artificial intelligence tools that sift through the data to detect errors such as misdated year-end reports. Finance professionals such as investors, auditors and industry researchers use the resulting repackaged and cleansed data to compare financial ratios, examine entire industries and review competitors' disclosure data.

"A lot of what we're charging for isn't the data," says Alex Rapp, Calcbench's CTO

and co-founder. "It's how we structure it, how we store it for you and how we solve a tremendous number of business problems by making data comparable across different companies and industries. That's something the data doesn't do itself."

Nor is it a service that would have been possible without the U.S. government's insistence, starting in 2009, that the financial information in corporate SEC filings must be in XBRL (Extensible Business Reporting Language) — a freely available and global standard format for exchanging business information. Whether you're downloading quarterly filings directly into spreadsheets or analyzing year-end statements using off-the-shelf software, XBRL converts fragmented financial data into a machine-readable format. And that makes life easier for Calcbench's techies.

But as government agencies inch toward cleaner, more structured data sets, a handful of startups are offering powerful new tools for dealing with older data. "These intermediaries are going to make open data more accessible to other types of companies because the reality is, open data is still pretty messy at the local, state and federal level," says Gurin.

One of those startups is New York-based Enigma Technologies, which has created a platform that allows users to access open data via an API or a Web dashboard. The company uses Web crawlers that gather public data from sources such as dot-gov websites and FCC documents regardless of whether the information is stored in a Zip file, an Excel spreadsheet or a multigigabyte database. Next, the platform creates a relational infrastructure that centralizes all of the open data and creates links between matching data sets. A single interface offers users access to more than 100,000 sources of finely curated data. And because Enigma's solution is offered as an API, developers can borrow the technology to build dashboards that serve their industry-specific data retrieval needs.

"We're able to provide access to this universe of public data that is otherwise totally obscure and in the shadow," says Enigma co-founder Marc DaCosta.

In fact, there are plenty of ways for IT departments to tap the business value of open data. Some will opt to use tools from companies like Enigma. Others will staff their IT departments with Ph.D.s, develop sophisticated algorithms and build robust storage networks. And some will wait until government protocols catch up with corporate demands. Whatever the game plan, says Gurin: "Open data may not be the way for everybody, but it is the way forward-thinking CIOs are thinking about business." ♦

Waxer is a Toronto-based freelance journalist. She has written articles for various publications and news sites, including *The Economist*, *MIT Technology Review* and *CNNMoney.com*.

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SPRING-CLEAN *your* APPLICATIONS

It's not easy — but **reducing the number of applications your organization supports will save IT time and money.** Here's why asset management really matters now. **BY SANDRA GITTLEN**

WHEN IT COMES to shutting down out-of-date, risky or unnecessary applications, James Gordon doesn't mess around. "Users will tell us we can't get rid of certain programs because they always use them," says Gordon, who is vice president of technology and operations at Needham Bank. In response, he says, IT first asks the users to define "always" and then conducts a simple test: "We shut off the application's server to see if anyone notices."

That might seem drastic, but Gordon says it's the best way to rebut a claim that a program is a must-have. "If we can prove that access to an application hasn't been attempted in six months, then we can argue that the application isn't necessary," he says.

IT powers the server back up as soon as the first call for the application comes in — which happens about half the time, Gordon says. "Sometimes it will be off for two months, and then we get a call, and have to eat crow," he explains. "Other times, the app is forgotten."

IT executives today must keep close watch on software usage, because out-of-control application stacks can jack up costs, introduce vulnerabilities, add to infrastructure complexity, jeopardize licensing and waste staffing resources.

"Fewer than 20% of applications account for more than 80% of IT's budget," says Gartner analyst Andy Kyte. Optimizing that 20% by eliminating redundant, inefficient and wasteful software can cut costs and improve efficiency.

"You have to manage all applications for value. Know what you've got, why you've got it, what it costs, what you plan to do with it and how you're going to continue to manage it," Kyte says. Individual applications and application portfolios have to be affordable and offer good service to users.

The best way to ensure that your application portfolio is at an optimal level is to make sure it doesn't get out of control in the first place. But for some, that ship has already sailed.

Sprawl occurs for many reasons, including mergers and acquisitions and siloed business units buying their own tools, says Ramana Reddy Depa, CTO at KillerIT, a division of Forsythe Solutions Group that sells asset-management software. "When businesses are doing well, there isn't much focus on normalizing or reducing applications," he says.

In his work with Fortune 50 companies Depa has seen problems such as functional redundancy run rampant. Out of every 100 applications in an organization, 30 to 35 have some degree

of redundancy, he says.

The traditional first step is to compile a comprehensive inventory of applications in use and dormant. Really useful application inventories, Depa says, dig deep and gather data about all systems that exist in the environment and the infrastructure they rely on.

There's no shortage of software available to capture data about your roster of applications, including details such as licensing agreements, versions, usage and location. Microsoft, CDW, Lansweeper, Quest, Riverbed and Spiceworks all offer products designed to handle that task.

But preparing an application inventory requires time and effort. One midsize company that Depa consulted with went into an audit thinking it had 400 applications, only to find 130 more.

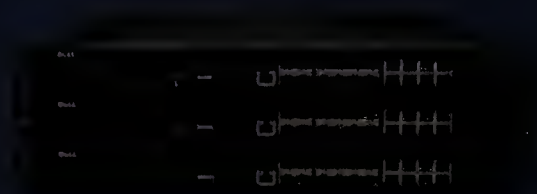
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DATA CENTERS

The Business Case

Just three years ago, The First Church of Christ, Scientist had 1,500 end-user-developed applications for its 550 users. The organization, which is both a church and a publishing house, suffered from severe departmental data silos, according to CIO Curt Edge.

Each department used a different application to store its member data and handle subscriptions, fulfillment and finances. The broad application portfolio was causing inefficiencies and draining IT resources at a time of cutbacks. The organization had 400 servers on site — most running just one application. “We were spending 90% of our IT budget on system maintenance and 10% on the business,” Edge says.

He faced not only internal demands to control spending, but also industry pressure to comply with the newly released

Payment Card Industry Data Security Standard. “There was no way we could follow the requirement of security patches within 30 days with the limited staff we had. We just didn’t have the horsepower,” Edge says.

That’s when he took the drastic step of consolidating all redundant, out-of-date and inefficient systems and moving them to the cloud. For instance, he got rid of Microsoft Exchange and Office in favor of Google’s Gmail and Google Docs. He eliminated department-level programs such as FileMaker that kept data in silos and started using Salesforce.com’s hosted systems.

By the time the IT overhaul is complete later this year, Edge expects to have only one on-site server for DNS and other network functions. All other applications will run off of virtual servers in a CenturyLink (formerly Savvis) data center, or they’ll be SaaS-based or outsourced.

Edge can’t share financial data that validates the drastic changes, but he says the benefits are plentiful. Data has been pulled out of silos, fostering collaboration across the enterprise; IT now focuses on the business instead of application upkeep; and users have access to up-to-date, compliant and best-practice-based tools.

Convincing the Boss

This change wasn’t without its struggles, though. Edge had to educate the board of directors and senior management about the positives of a leaner IT and infrastructure. He worked closely with the organization’s treasurer to ensure there was an ROI.

Then he established partnerships with all business leaders and explained how much simpler their jobs would be with a streamlined, cloud-based operation. When he got pushback, he responded with numbers. For instance, to anyone who wanted to keep old data, he offered evidence that no one had looked at 80% of the data in five years. He said he would archive the data, so it wouldn’t waste backup and staffing resources.

He found members of his own IT team to be some of the toughest people to persuade because they worried that they’d lose their jobs or that they’d be ineffective without their favorite tools. Eventually, he says, he convinced them that IT’s value is not in supporting technology, but in understanding the business and using technology to achieve business goals.

Architecting Success

Like Edge, Craig Huegen, senior director of IT for Connected IT Services at Cisco, works hard to combat application sprawl, but he acknowledges that redundant, inefficient and out-of-date programs do pop up from time to time.

His team uses a system information exchange — built using Troux Architect software — that maps all business processes to applications, infrastructure and other enterprise resources. “We track where data comes from and where it goes, so we can monitor application interaction,” he says.

For instance, the system information exchange reveals the interdependencies between the company’s order management system and its service management system — such as what data is shared between the two systems, how it is exchanged and where it is stored. This insight is essential when Huegen has to consolidate or retire applications.

Cisco’s 2005 acquisition of Scientific Atlanta offered a good example of how application overlap can be addressed. Using the system information exchange, Huegen identified duplicate func-

GOODBYE

Application management is an ongoing task. However, IT must consider every angle when deciding to ax a software tool. Here are some questions to consider when assessing an app’s importance in your organization.

How many users or customers interface with the application? If there’s a large pool of either or both, then consider the ramifications of taking it away.

What business processes are tied to the application? Some applications are in place as a way to get data from Point A to Point B. Make sure you understand the interdependencies of the application before eliminating it.

Do you have a replacement for the application? It’s fine to determine that an application puts data at risk or is out of date, but make sure there is a viable alternative in place before deleting it.

Is the new application too good to be true? While the new application might have more bells and whistles than its predecessor, what underlying infrastructure is necessary? Will you have to purchase high-speed storage or more-powerful servers to achieve maximum performance? Consider all requirements of the new application before ditching your old one.

Do users like the new application? Don’t fall prey to the hype of a new application without testing it on your user base. If they don’t like it, you’ll wind up wasting time and money — and you may have to reinstall the old program.

— SANDRA GITTLEN

tionality in each company's order management system. "By showing the cost and pain points of staying on separate systems, we were able to convince Scientific Atlanta business leaders that they should adopt Cisco's system," he says.

When switching to a new application, Huegen meets with key users to construct a mock-up that includes the features and functionality most important to them. This process, used for off-the-shelf and cloud-based systems, makes users feel more invested in and comfortable with a new application.

The SaaS Effect

Virtualization and the cloud are strong selling points. Huegen explains that infrastructure to support new projects can be available in 15 minutes instead of 12 weeks. He adds that consistent and standardized applications yield a far better experience because it isn't necessary to call in a chief architect every time a user needs support.

These arguments swayed Cisco's human resources group to let go of a costly application and embrace an affordable SaaS-based platform.

Nate McBride, vice president of IT and chief cloud architect at AMAG Pharmaceuticals, also invokes the benefits of SaaS to pry aging and redundant applications out of users' hands.

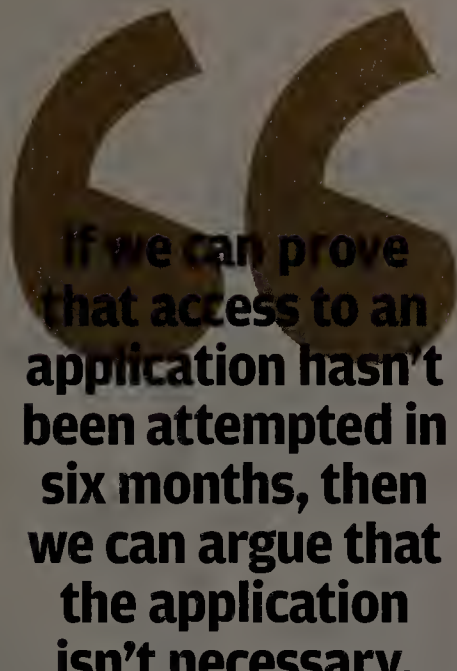
When he joined the company in 2008, he made it a mission to eliminate the data center and go entirely to the cloud. Instead of starting with a small-fry program, McBride went big and retired Microsoft Exchange and SharePoint in favor of Google Apps.

Users resisted, so McBride took it slow with some parts of the migration, such as document storage. "We went to Google Docs but kept local file servers as a compromise," he says.

He had less patience for obvious redundancies, including project management applications. With three or four packages floating around the 170-employee company, McBride urged everyone to settle on one — the Google-supported Smartsheet.

"We have people who are old-school about project management. But we demonstrated that what they were doing was archaic and that there are new and better ways to achieve the same result," he says.

One thing that always gets people's attention is the anytime, anywhere access that cloud-based applications provide. "We tell



If we can prove that access to an application hasn't been attempted in six months, then we can argue that the application isn't necessary.

JAMES GORDON, VICE PRESIDENT
OF TECHNOLOGY AND OPERATIONS,
NEEDHAM BANK

them, 'We can't support your old application on the iPhone, iPad or your home computer,' and then they are willing to listen," McBride says.

Before moving users to a new application, McBride solicits input from business leaders about which apps would work best. In one case, a department wanted to use Tableau to chart commercial analytics. McBride's team tested it, bought seats and added it to the backup schedule, something that wouldn't happen if the department operated the application outside of IT.

McBride encourages users to explore new apps that can help them do their jobs better and is ready to kill off even hosted apps that are unpopular, unproductive or require too much support.

What You Can't See . . .

IT executives must have access to all technology-related invoices to be able to make an informed decision to buy, sell or hold.

Invoices give unmatched insight into licenses, maintenance plans and redundancy. Paired with traditional assessment tools such as application access statistics and vulnerability assessments, invoices help IT executives make informed decisions about which applications to keep or retire.

For instance, Needham Bank's Gordon realized via invoices that his team was using multiple backup tools, including Symantec Backup Exec and Veeam. "They provide the same functionality and we only need one," he says. They settled on Backup Exec.

"CTOs need to have invoices come across their desk, be responsible for billing and be cognizant of application costs," Gordon says. "It's very easy for an organization to spend money on two or three products that do the same thing." In addition to the support issues, this can mean the enterprise can't claim the vendor's licensing discount for multiple seats.

But there may be some battles you just can't win. "Everybody has different ways to do the same thing," Gordon says. "Even though we spot inefficiencies, in the end it's not our place to manage other people's productivity. We just have to protect the data going into and coming out of those apps." ♦

Gittlen is a freelance technology writer in the Boston area.

Contact her at sgittlen@verizon.net.

GO FOR THE GUSTO

Don't get caught up inventorying every single application, advises Andy Kyte, a Gartner analyst. Instead, put a laser-like focus on the largest applications — or what he calls the elephants in the portfolio.

"If you go around killing off the smaller applications, or mice, there is little impact on budget, agility and responsiveness," he says. Instead, he recommends tackling 50 to 100 of the most complex and bloated applications, such as ERP and health administration systems, and their as-

sociated business processes. That might take more effort, but it's sure to improve the stature of IT and the business overall.

He argues that no application is above scrutiny. "Smart CIOs will look for ways to [pay for] modern systems . . . rather than cementing themselves in legacy architecture," Kyte says.

Large organizations that have grown through mergers and acquisitions — and likely have application portfolios with extensive duplication — should be able to cut costs by at least 30% by ruthlessly focusing on business process standardization, Kyte says.

— SANDRA GITTLEN



4 Ideas

to Steal From IT Upstarts

A S A HIGH-TECH STARTUP, MongoDB gave no real thought to IT as it was getting off the ground. Laptops were purchased on an as-needed basis by individual employees and expensed alongside printer paper and working lunches. Free cloud applications like Google Apps and Dropbox were the go-to productivity tools, and engineers coding the company's product,

chief operating officer, as opposed to appointing a dedicated CIO.

For Enterprises, Two-speed IT

There's no question that companies setting up a ground-floor IT operation have far greater latitude to experiment with new models, since they're unencumbered by the baggage of legacy systems and cultural inertia, experts say.

a NoSQL database, were certainly tech-savvy enough to spin up servers and troubleshoot problems on their own.

Yet as the company launched into hypergrowth mode, ballooning from four employees in 2009 to 330 in four years, it had to adjust the way it handled IT. The tipping point came in 2012 when MongoDB hit about 70 employees, many of whom weren't developers.

"From an IT perspective, anything works with two people because the requirements are so sparse," says Eliot Horowitz, CTO and a co-founder of MongoDB, which has dual headquarters in Palo Alto, Calif., and New York. "Engineers generally want as little configuration, security and day-to-day support as possible. Scaling the IT organization had to happen when we started to support nontechnical people."

MongoDB has formalized security standards and procurement policies and brought on a handful of full-time IT workers, yet its vision of IT is still a far cry from those of most traditional organizations. Like many newbie companies building an IT infrastructure from scratch, it's shifting away from on-premises enterprise applications to software-as-a-service (SaaS) tools and emphasizing self-service, the goal being to empower business users and reduce the administrative and support burden on IT.

Startups also tend to favor smaller, flatter IT organizations that are more closely integrated with business units. Instead of staffing a dedicated department with dozens of network specialists, support technicians and business analysts, they rely on a core IT crew working in concert with business leaders and outsourcing partners to build and manage IT operations. Many are also folding IT into the domain of the CTO or

When startups grow up, their IT must mature as well. Here's how four hot companies are choosing tech that's serious but not stodgy. BY BETH STACKPOLE

Traditional IT shops have a lot to learn from the experiences of their younger and more nimble counterparts. By applying some of the new deployment and organizational concepts, established IT groups can drive more innovation, particularly in the area of the front office, which has yet to be transformed by technology initiatives on the same level as back-office operations, notes Leigh McMullen, an analyst at Gartner.

For organizations that have left their startup days far behind, McMullen recommends “two-speed IT” — where traditional IT organizations are augmented with a subgroup charged with pursuing “mission-enhancement” projects. Many of those projects are undertaken for the front office, which Gartner defines as “the revenue or value-creating segment of the enterprise” — think product development, marketing or sales.

Here, McMullen says, IT should play by a new set of rules and adopt a startup mentality while establishing lean teams and embracing new development models. “This is a very different organization that employs different funding and governance models and operates at a different tempo,” he explains.

“The things that are going to help the front office are typically smaller, not the big monolithic ERP system” — and IT typically isn’t able to do little things, McMullen says. “To get a three-person, three-week project approved inside a traditional IT organization takes longer than three weeks. It’s just not built to do that.”

What else can enterprises learn from the young guns just now entering IT adolescence? Here are some ideas from rising stars MongoDB, Square, Plum Organics, and Alex and Ani.

1 SaaS Speeds Delivery

One near-universal way startups are injecting agility into their IT infrastructures is by forgoing monolithic enterprise applications in favor of SaaS models, whether it’s for back-office functions like order processing or front-office tasks like collaboration and brainstorming. Rather than building out a technology stack with discrete systems like ERP or CRM, IT shops in today’s startups are more focused on delivering cloud-based business capabilities that serve a particular purpose — for example, to help salespeople track leads or to facilitate collaboration among global team members.

“It’s not just a cloud-first strategy, it’s a capability strategy rather than an application focus,” McMullen says. “Instead of procuring the best technology to deliver everything they need at once, they are focused on delivering what’s good enough to get the mission done today. They are not hung up on the conventions of picking a platform and sticking to it.”

While readily available cloud-based tools like Google Apps and Dropbox were the underpinnings of MongoDB’s IT infrastructure, the company stuck to the SaaS model as it branched out to enterprise functionality, Horowitz says. For example, the team turned to Salesforce.com for CRM and is using Cisco’s Meraki cloud-based, managed Wi-Fi system to bring connectivity to its remote offices without having to staff up IT.

While Horowitz had initial concerns about the scalability of early SaaS tools, he says things have stabilized in the past five years and any risk associated with the cloud delivery model has dissipated. “We try to keep everything hosted and scalable as much as possible,” he explains.

Under Horowitz’s direction, the three-person IT team, in tandem with senior business leaders, created standard usage and



We try to keep everything hosted and scalable as much as possible.

ELIOT HOROWITZ, CTO, MongoDB

security policies. That allows business users to tap other SaaS tools at their discretion as long as they comply with the overall IT policies, Horowitz says.

“SaaS has been key in keeping our IT organization small,” he explains. “IT has become more of a policy center, and business teams manage their own deployments. It keeps things moving faster and is far more efficient.”

2 Self-service Rules

At Square, an e-payment company started by Twitter co-founder Jack Dorsey, cloud apps play a key role in an IT philosophy centered around customer experience, internal and external.

As at MongoDB, production engineers at Square pitched in on IT chores like configuring servers in the early days. But once the company hit 30 people, it hired an IT contractor to handle routine technology tasks like imaging, setting up new machines, and maintaining file servers, Wi-Fi and automatic backups.

“We needed to build out an IT organization so production engineers could devote 100% of their time to building products for merchants as opposed to troubleshooting systems or finding a power cord,” says Square CTO Bob Lee, who is also responsible for internal IT.

In addition to the outside contractor, Square maintains an IT staff that works closely with Lee and the engineering team — a synergy that Lee says promotes collaboration while aiding in scalability. “Rather than the IT team performing the same rote task over and over again, they engineer [internal] solutions,” Lee says. “Coupling them with the rest of production engineers aids in collaboration.”

The combined team has been charged with building a self-service IT infrastructure that Lee says makes it easy for Square employees to get their jobs done. For example, an internally developed iOS-based central tracking tool helps employees keep

EMERGING TECHNOLOGY

tabs on everything from upcoming Square product enhancements to lost-and-found items.

In the same vein, the team developed an internal app with shortcuts to hundreds of pieces of documentation and websites that can help employees be more efficient by assisting them with a variety of tasks, from finding out who's working on what product to signing guests into the building or getting the scoop on the best local pizza delivery.

What's not self-service is designed to be as easily accessed as possible: When workers need help, they can visit the new "IT bar," modeled after the Genius Bar in Apple stores, to get day-to-day support and hand-holding.

"It's all about making things fast and frictionless for internal people," Lee says. "One of the keys to easy collaboration is providing all the information needed to do the job."

3

Simplify the Org Chart

Building out IT with an eye toward a leaner and more compact organizational structure is another common characteristic of adolescent enterprises.

Plum Organics, a maker of baby foods, worked with an outsourcing partner early on to handle the heavy lifting of setting up servers, managing email and establishing connectivity to external partners. But when the company entered its 2012 fiscal year expecting to hit the \$60 million mark, it realized it was time to retire the spreadsheets and QuickBooks in favor of companywide ERP. Still, Plum didn't staff up internally, says Mike Meyer, the company's COO/CFO, who has responsibility for IT.

Instead, Meyer and a business team spent eight to 10 months planning and mapping out business processes and then working hand in hand with an external implementation partner (Meyer declines to name it) that got an SAP cloud-based ERP system up and running in a scant two months. Today, Meyer and other senior operations and finance leaders continue to set direction for IT, though the company is about to hire a full-time IT manager to help with implementation, Meyer says.

In addition to serving as the point person working with the third-party outsourcing partner, the new hire will play another critical role given the latest chapter in Plum's growth — the now 90-person company was bought last June by Campbell Soup Co. "The IT manager will be the person on the ground working with our teams to figure out how to best leverage the technology and existing infrastructure Campbell has," Meyer says. For example, Campbell has a fully staffed help desk and a data center packed with file and email servers that Plum Organics can use.

"This gives us the opportunity to have someone with technical skills on site who can help us leverage [Campbell's] larger and established infrastructure," Meyer explains. "At the same time, we can remain nimble and continue to leverage cloud capabilities to grow and be competitive in the market."

4

Fail Fast, Stay Agile

At jewelry maker and retailer Alex and Ani, the internal IT group, at just under 40 people, is more akin to a traditional enterprise IT shop, but there are still real differences in its approach to technology. Founded in 2005, the company now employs more than 300 people but just hired its first CTO about a year ago to oversee both internal IT, including a recent on-premises



We [will] continue to leverage cloud capabilities to grow and be competitive in the market.

MIKE MEYER, COO/CFO, PLUM ORGANICS

ERP implementation, as well as customer-facing initiatives, such as a new mobile point-of-sale system.

"It's fun to have the blended role, and it creates a much better and more cohesive technology stack for the company," says CTO Joseph Lezon. For instance, Alex and Ani has a sizable digital team focused on e-commerce and social media, which benefits from some of the initiatives undertaken internally, Lezon says. "When you have the CTO and CIO role blended, it gives you a cross-functional view of external and internal initiatives," he explains.

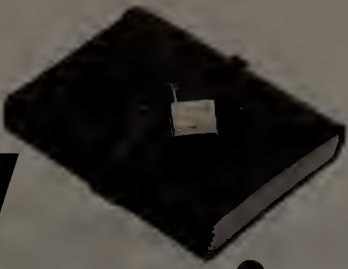
Another difference between traditional IT shops and Alex and Ani's is that the team frequently test-drives technology and doesn't hesitate to pull the plug if something doesn't meet expectations. The company has that kind of flexibility, Lezon says, because with few enterprise systems in place, there are no integration points to create challenges.

"We have the ability to be nimble and do trial-and-error pilots," he explains. "If something works, great. If not, we move on to something else." It took multiple iterations, for example, to get the mobile point-of-sale system working to satisfaction, Lezon says. And an initiative to put video displays in stores, to help promote the brand, products and events, changed mid-stream to a different product when the initial implementation didn't work as expected, he says.

Without the legacy baggage and red tape that are the hallmarks of old-school enterprise IT, companies in startup mode have a lot more flexibility, allowing them to push the envelope and be far more innovative with IT.

"Corporate America is risk-averse and is not encouraged to fail," Lezon says. "We, on the other hand, are moving at battle speed and are going to make mistakes. We just have to learn from them, pick up the casualties and move forward. We have a lot more leeway in what we can try in terms of innovation." ♦
Stackpole, a frequent Computerworld contributor, has reported on business and technology for more than 20 years.

Security Manager's Journal



MATHIAS THURMAN

Vendors Can Make Us a Target

The data breach suffered by Target could make it easier to make some needed changes at our manager's company.

THANK YOU, Target! It's a pity that security managers have to capitalize on other organizations' misfortunes to broker change within their own enterprises, but the notorious Target breach of late last year just might get me some things I think my company has needed.

The breach may have occurred due to a gap in Target's vendor management program. Although the incident is still under investigation, it is suspected that an outside service provider that managed some of Target's heating and ventilation systems fell victim to a phishing attack that let the hackers gain access to Target's internal infrastructure and exploit resources containing customer data. I feel for Target, but this was the perfect scenario to accelerate action on findings that revealed shortcomings in the security of our company's vendor management program.

Last year, my security department approved more than 600 tickets for what we call "Vendor/Partner/Distributor," or VPD, requests. Typically, a VPD is a company or person who performs work based upon a statement of work. Since

we don't have any fancy onboarding automation tools, managers simply use an online form to request access for a VPD.

Such requests trigger several email workflows. An email is sent to our procurement team to ensure that the vendor is valid and authorized to do work for our company and that the proper services and nondisclosure agreements are in place. Another email comes to my team, and we review the access request from a security perspective. A third email asks the help desk to provision an Active

Directory account, an email address if needed, and an RSA software token for two-factor authentication to our partner VPN

portal. Finally, the network team receives an email asking to add the user to one of our defined VPN profiles, which are configured to restrict general access to various applications.

About six months ago, we identified several weaknesses in this process. In some cases, vendors that no longer needed access still had valid accounts in our Active Directory server because the manager forgot to terminate the vendor's access at the end of a contract. To address

the discussions about security! computerworld.com/blogs/security

Trouble Ticket

» Gaps in the vendor management program could leave the company vulnerable.

» Use Target as an example to procure real change.

this, we will create an automated process for terminating a vendor's access after a set period of time unless the manager requests an extension.

Another problem was that the network team too often failed to restrict access to the lowest level of privileges needed. For example, a vendor hired to modify some marketing material should have been granted access to a single document contained within a Microsoft SharePoint site, but its VPN profile let it access SharePoint, our financial servers, our HR systems and our source code repositories.

Even Worse

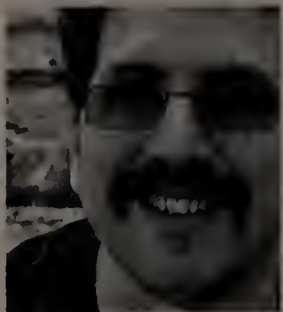
Both of those issues need to be addressed, but what really concerns me is that vendors have been allowed to download the VPN client and use it to connect to our network. Vendors are supposed to be restricted to a clientless VPN portal with links to needed applications. That keeps vendors' PCs off our network — PCs whose integrity we can't vouch for. But any PC using the VPN client is configured as a node on our network, just as if it were plugged into an Ethernet port in our office. That, of course, ups the chances that hackers can propagate malware or take advantage of an exploit and gain unauthorized access to our network.

To mitigate this issue, I've been pushing for the deployment of machine certificates to all company-owned PCs. No certificate, no remote access to our network.

There is some work to be done to tighten this process, but now, thanks to Target's pain, I have the perfect war story to gain traction for my plans. ♦

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.

The Target breach is the perfect scenario to accelerate action on some security lapses.



— OPINION

RON MILLER

When Will We Start Taking Security Seriously?

We must set the smartest minds to coming up with newer, safer and less complicated security methods.

A FEW WEEKS AGO, I was happy to hear that Target CIO Beth Jacobs had resigned. This wasn't only because falling on her sword was the right thing to do after her company's massive data breach. The fact that just days earlier I had realized that I was caught up in this mess had something to do with it.

My credit card was used several dozen times at a Mumbai shopping site, and I am convinced that it was compromised in the Target breach. But why didn't my credit card issuer's security algorithms pick up this obvious anomaly? Because I am a frequent traveler, I was told, the charges didn't seem out of the ordinary.

Really? Forty purchases from the same online shopping site didn't seem just a bit suspicious — even though, in all my travels, I've never been to India?

All of this has been smoothed over. Jacobs is out, I have a new card, and the bank will absorb all those bad charges. Still, I can't help but wonder whether there isn't a better way to do security.

As it turns out, I did do some foreign travel around the time that I discovered those Indian charges. I went to Barcelona for the Mobile World Congress. And while I was there, I peppered Gary Davis, a vice president in consumer global marketing at McAfee, with questions about the state of Internet security. He told me we should be seeing some real improvements shortly.

Today, most of us protect our accounts with a simple password. Many of those passwords are laughably easy to crack, as the list of last year's 25 worst passwords illustrates. Some sites try to remedy that by forcing users to create ridiculously complex passwords, but that just causes users to write the passwords down and leave them where anyone can see them.

And password complexity is a moot point when a database gets hacked and passwords are among

the prizes. The same is true if someone installs a keystroke logger on your machine.

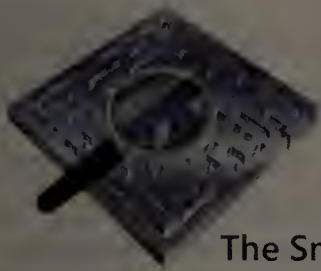
So how do we improve security? There are a lot of things we can do, Davis told me. For starters, he said, companies over the next five years are going to get better at detecting behavioral anomalies by building more detailed security profiles based on typical behaviors.

That could help, but making devices themselves more secure would help more. For too long, we've had nothing but password protection on mobile devices. Apple's and Samsung's moves to let you unlock your phone with a fingerprint are feints in the right direction, but not enough. How about a combination of face and voice recognition? Davis said those two things together would make devices very difficult to hack. And we have most of what we need to implement it. Nearly everyone today carries a phone equipped with a microphone and a camera. We just need some cheap recognition software to complete the picture.

We have other unique identifiers we can leverage, he noted, such as our retinas, our heartbeats and even the cadence of our typing. We already have the technology to wrangle all of those.

What's holding us back? It's clear that our credit cards, our personal devices and our networks are porous to anyone with a modicum of technological savvy. What's going to have to happen before we see that we must set the smartest minds to the task of coming up with newer, safer and less complicated security methods? For once, let's not wait for the worst. ♦

Ron Miller is a freelance technology journalist and blogger. He is an editor at Fierce-ContentManagement and a contributing editor at *EContent Magazine*.



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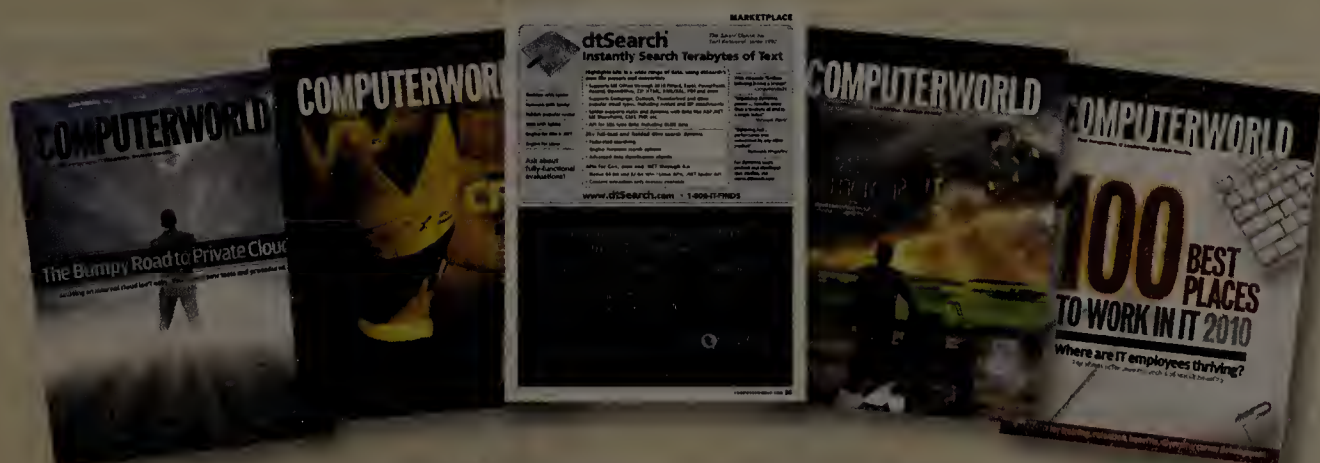
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Career Watch



Q&A

David Foote

The chief analyst at IT workforce research firm Foote Partners says

people architecture is gaining popularity.

What is people architecture? It's very similar in principle to traditional IT architecture initiatives, but applied to workforce management and IT human capital practices. There are capability road maps, phase-gate blueprints and performance metrics. Governance issues need attention, and business strategy drives it all. But with people architecture, it's about how key human capital management elements such as job definition, skills acquisition, compensation, professional development, work/life balance and recognition plug into an overall optimized operational model. The model is tuned to new technologies, business strategy, organizational goals, and culture and performance philosophies, and it promotes flexibility and scalability, like any disciplined architecture approach.

For employers, people architecture can mean improved individual and team performance and more predictable execution, more consistent availability and quality of skills and workers, higher utilization rates, and optimized resource supply/demand management. For IT professionals, it can mean more tangible career paths, more useful feedback on how they fit into the

overall IT and business mission, and less confusion about job options. And we hear stories about better morale.

How is it implemented? People architecture has a long tail; much can be implemented in months, but it is really built incrementally over years. It starts with adopting a model in which technology professionals inhabit broad, horizontal roles rather than hundreds of siloed and somewhat disconnected jobs. Typical roles include analyst, architect, project and program manager, consultant and tech specialist. Standards are logically defined and aligned within each role, covering things like proficiency in the technical, business and soft skills necessary for moving along development and promotion paths. Jobs that fall within each role can then be defined, titled, graded and leveled with appropriate compensation structures, incentive designs, skills pay programs and performance plans.

It sounds difficult. It might not be easy, but it's necessary. CIOs are having difficulty finding and retaining people who can perform at a high caliber on increasingly more difficult tasks, and at the same time they're feeling immense performance pressure. Plus, the IT workforce today is spread throughout the enterprise doing multidimensional jobs that are hard to categorize, price and manage. In this environment, many IT leaders and business executives have come to see the architecting of people management as the next logical frontier.

Who is employing it so far? The IT professional services and business consulting industries have been practicing people architecture for years, and for good reason: Their assets walk out the door every night. Just to stay competitive, they've had to pioneer a lot of very effective human capital management programs for attracting, developing, promoting and retaining great people. But people architecture principles are within reach of every employer. We're seeing interest growing in many industries.

And in companies of all sizes? It's more natural for small-to-midsize businesses to put people architecture practices in place. Meanwhile, larger enterprises have adopted too many workarounds in dealing with disruptive technology, skills gaps and a rapidly evolving IT workforce. Many are now reorganizing around substantive rethinking of the role of technology in the enterprise and these reorgs have been exposing serious structural weaknesses in how IT talent is acquired and managed. That's why people architecture is getting traction. Failure to execute is a very real threat to CIO job security, and in the end it always comes down to the people who do the work.

— JAMIE ECKLE

LINUX PROS ARE IN DEMAND

Some key numbers from the 2014 Linux Jobs Survey

SOURCE: LINUX FOUNDATION/DICE SURVEY OF OVER 1,100 HIRING MANAGERS AND LINUX PROFESSIONALS WORLDWIDE, FEBRUARY 2014

77%

of hiring managers have "hiring Linux talent" on their list of priorities for 2014, up from 70% a year earlier

46%

of hiring managers are beefing up their plans for recruiting Linux talent in 2014, up from 39% a year earlier

93%

of hiring managers plan to hire Linux professionals in 2014, up from 88% a year earlier

55%

of hiring managers find it "very easy" or "fairly easy" to hire Linux professionals

Functional Solutions Analyst (Alpharetta, GA, must be willing to relocate to unanticipated cities across the country. Telecommuting offered, but travel to client site from time to time is required (about 10%); Interact with business users in functional area to understand their business processes and requirements for CRM solutions. Propose work flow automation solutions to clients. Email resume w/ cover letter to United Cloud Solutions Inc., at hr@unitedcloudsolutions.com.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: D. Racherla. Please reference job # below:
Software Engineer (New York, NY) **#1615.6246**: Design, develop, modify, and/or test software needed for various Google projects. Exp. Incl: Linux; Server side dev; Database dev; RESTbased web services; design, implement, test, & maintain of modular sw components; & comp security; Java.

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Computer Systems Analyst position in Portland, Oregon for Health Services Group, Inc. through it's subsidiary, Moda Health Plan, Inc. Responsible for major computer systems' development lifecycle from start to finish, determine functional specifications & requirements for new applications & enhancements to existing applications in healthcare industry including: Medicaid and Medicare Encounter processing; FACETS application and database w/analysis and implementation of Claims and Membership solutions; and FACETS HIPAA Gateway (FHG). **REQUIRES Associates Degree (U.S. or foreign equivalent) in Computer Science or Computer Information Systems.** In addition to degree, must have 5 years of progressively-responsible experience as System Analyst (SA) or Computer Engineer (CE), including: involvement in complex, cross-departmental projects involving multiple software platforms; knowledge of systems development life cycle; creation of detailed technical design specifications; leading walk-throughs of design documents & providing technical advice to development team; and working with multi-discipline teams. Experience as SA or CE must include 3 years of experience in Healthcare industry, including: Medicaid and Medicare Encounter processing; experience with FACETS application and database including analysis and implementation of Claims and Membership solutions; and experience with FACETS HIPAA Gateway (FHG) with detailed knowledge of HIPAA Electronic Data Interface (EDI) transactions 834, 837, 270, 271, 276 & 277 including proficiency with ETL tools and HIPAA compliance tools. Experience may be concurrent. Fulltime position; 37.5 salary hrs/wk, plus on-call status, and may require hours in excess of standard workweek. Must have proof of legal authority to work in the United States. See complete job description/duties and apply at our website, www.modahealth.com, with resume, reference list & cover letter listing your qualification for each requirement. AAP Employer.

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Software Engineer positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. Incl:
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#1615.5982: front-end, server-side, or web service dev; C++ &/or C#; Java; Python; databases & SQL; machine learning; MapReduce & big data analysis; distrib syst; & Linux.
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SHARKY'S

TRUE TALES OF IT LIFE AS TOLD TO SHARKY



HAL MAYFORTH

1000000 Days and Counting

Pilot fish at this manufacturer gets an automated message after not logging in to a big customer's portal for a while: *Your user ID has not accessed the Supplier Portal for over 1000000 days. Due to the lack of activity, your grant for this portal has been changed to "inactive." Since your access has been inactivated, you will not be able to access the portal nor any of the applications contained therein. Fortunately, your access to this Portal can be easily restored. Your Security Administrator is able*

to reactivate your access. Use the link provided to view your company's security administrator(s). Once reactivated, simply be sure to access the portal at least once every 1000000 days to maintain your active status. "1,000,000 days? Really?" says fish. "They're saying I have not accessed the portal since Feb. 24, 725 B.C. Was access achieved using stone tablets or papyrus? But if my access is restored, I promise to access the portal at least once before Dec. 19,

4751, in order not to lose my access again."

What's the Hurry?

This financial firm needs top-notch operational IT performance and is willing to pay for it. "To that end, it purchased a solid-state drive SAN for its SQL Server data stores," reports a pilot fish in the know. "Following what any database administrator would consider best practices, they had been doing their backups lo-

cally – for speed – and then copying the backup to a separate storage device. When they moved to the SSD SAN, the backups began failing immediately after running. They opened support cases with Microsoft and the SAN vendor that got gradually escalated up the ladders until it was the top engineers and developers at both companies talking to one another. After weeks of analysis, they determined that the backup completed so quickly that SQL Server hadn't had time to finish some of its background tasks, so it assumed that the rapid completion actually indicated a failure. The firm moved its backups to a slower storage device while the vendor engineers wrote a custom patch for them."

Going Through Proper Channels

This sysadmin pilot fish knows the technology of his company's systems inside and out. But his boss? "Not so much," says fish. "When my explanation of an issue is too technical, my boss blows up, saying he doesn't want all that 'technical gobbledygook.' But when one of my nontechnical co-workers briefs the boss, he demands the technical details. So what does my co-worker do? Asks me for the 'technical gobbledygook' to give to the boss."

» **Sharky wants your story,** gobbledygook and all. Send me your true tale of IT life at sharky@computerworld.com. You'll snag a snazzy Shark shirt if I use it.

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OPINION

S.J. VAUGHAN-NICHOLS

Who Needs Operating Systems? Not You.

Cloud-based apps have a lot to do with the end of the OS's dominance.

WRITE A LOT ABOUT OPERATING SYSTEMS: Android, Linux, Windows, Mac OS and anything else you can think of. That's because I've always been fascinated by them.

I started working with technology in the late 1970s. Along the way,

I've worked with IBM's mainframe OS/360, Unix on DEC PDP-11, and that ancestor of all PC operating systems, CP/M-80. Operating systems ruled your user experience; you had to care about which one you used.

But more and more, we aren't going to care.

Oh, if you're an engineer, programmer or techie you're still going to care. And I'm in no danger of running out of OSs to write about in my lifetime. But I can foresee a time when they will matter very little to users.

I'm not just talking about clueless users — “lusers,” as disgusted techies dubbed them long ago. They will always be with us, if we're to believe the results of a recent Vouchercloud survey, in which 11% of the U.S. respondents said HTML is a sexually transmitted disease, 27% thought a gigabyte was a South American insect, and 23% identified an MP3 as a *Star Wars* robot.

No, even users who are aware that a motherboard isn't the deck of a cruise ship are going to stop thinking much about the operating systems their devices run.

If you want to see how little an OS can matter to the user experience, check out Google's Chromebook. It runs a Linux variation, but most of its users probably don't give that a thought. That's because the experience is ruled, not by the OS, but by the Chrome Web browser and all the software-as-a-service programs you're likely to run on a Chromebook, such as Gmail, Google Apps, Google Drive, Google Music and Google+ Hangouts, a de facto videoconferencing system.

Chromebooks were a niche product not so long ago, but market analyst firm NPD reported in December that they held more than 20% of the U.S. commercial PC market by the end of 2013. My view is that Chromebooks are going to challenge Windows PCs for desktop dominance as the decade continues.

Cloud-based applications like Google Docs have a lot to do with the end of the OS's dominance. It may be that even Microsoft, the king of the OS world, is preparing for this. Microsoft now offers the cloud-based Office 365. And plenty of other companies are following suit. Intuit's QuickBooks Online, for example, runs on all the major Web browsers, regardless of platform, as well as Apple iOS and Google's Android.

So companies are letting end users run the programs they want on any platform. They're doing this by moving applications to the cloud. Even when there is a local client, major business software vendors such as SAP are betting on Web-based HTML5 apps rather than operating system-specific clients.

Sure, there will still be some programs that demand powerful local resources, such as Adobe Photoshop, Apple Final Cut Pro and massively multiplayer online role-playing games that require a PC. But for most users (I'm going to put the figure at 95%), nearly all of their applications (99% doesn't seem unreasonable) will run off the cloud, and that is where users will store their data as well. What OS will they use to get to the cloud? Whatever.

As long as they can get to the apps they want, users couldn't care less. ♦

Steven J. Vaughan-Nichols has been writing about technology and the business of technology since CP/M-80 was cutting-edge and 300bps was a fast Internet connection — and we liked it! He can be reached at sjvn@vna1.com.



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